Chapter-III

METHODOLOGY

(Part-A)

PROCEDURE OF THE STUDY:

It is most important for an investigator to decide and set up a methodology in a systematic way before the starting of investigation. The methodology and plan of action is decided by an investigator on the basis of the objectives and hypothesis set up for the study. Sampling methods, to select or construct a scale, statistical techniques are also included in the methodology.

This chapter consists of detail of sampling method, variables and the tools selected for the study, scoring, analysis of data, and statistical techniques are also given in this chapter.

METHOD:

Data constitute the foundation for statistical analysis. The rate at which statistical data are being collected is staggering to realisation. The better decisions are possible with more information, when statistical data are collected and analysed in the context of population and their characteristics. The required information or data in a study may be obtained either through a probability sampling or non-probability sampling.
In the present study, both the random sampling and non-probability sampling procedure were applied to collect data. A wide part of the universe, representative of the whole population is taken in the stratified random sampling and purposive sampling procedure to collect the necessary informations. The objective behind the random sampling procedure is to collect maximum information about the population's characteristics with minimum cost time and labour.

VARIABLES:

In the present study, one group Pre-test, Post-test design is being used to know about the effectiveness of training programme organised by BRC Cholapur. The survey design is being used to know about the opinion of teachers and interview method is being used to know about the duties and problems of BRC Cholapur.

Dependent Variables:

According to "Best & Khan" the dependent variables are the conditions or characteristics that appear, disappear, or change as the experimenter introduces, removes or changes in independent variables. The dependent variables may be a test score, the number of errors or measures speed in performing tasks".

Thus, the dependent variables are measured charges in pupil performance attributed to the influence of the independent variables. In the study dependent variables are as given below-
(i) Effectiveness of the training programme imported by BRC Cholapur.

(ii) Opinion of teachers on the quality of training programme and other activities imported by BRC Cholapur.

Independent Variables:

In the word of Best & Khan, "The independent variables are the condition or characteristics that the experimenter manipulates or controls in his or her attempt to ascertain their relationship to observed phenomena. "In educational research an independent variable may be as: particular teaching method, a type of teaching material, a reward, or a period of exposure to a particular conditions, or attribute such as sex or level of intelligence. Independent variables in this study are given below:-

i) Functioning of BRC Cholapur.

ii) Activities of BRC Cholapur.

iii) Activities of NPRCs belonging to BRC Cholapur.

SELECTION OF THE TOOLS:

After deep consideration of the objectives of the present study, it was decided to construct the tools for gathering the information related to objectives of the study. Following tools were prepared by the investigator himself-
(a) **Achievement test**: To measure the effectiveness of training imparted by BRC no suitable achievement test was available relating to content of training. So it was decided to construct an achievement test which could be used to measure the effectiveness of training.

(b) **Quality questionnaire test**: To measure the opinion of teachers it was decided to construct quality questionnaire test.

(c) **Interview schedule**: In order to check the problems related to the functioning of BRC an interview schedule was prepared for interview of BRC and NPRCs co-ordinators.

(d) **Check-list**: To check the functioning of BRC a check-list was prepared.

The details about the tools used and their construction are given in the Chapter-III Part (B).

**POPULATION:**

A population is any group of individuals that have one or more characteristics in common that are interest to the researcher. Conclusion of the present study conducted on the all block resource center of Varanasi district. Therefore population of the study will be the BRCs of Varanasi district.
SAMPLE:

A sample is a small portion of a population selected for observation and analysis. By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn. Contrary to some population opinion, samples are not selected haphazardly. They are chosen in a systematically random way so that chance or operation of probability can be utilized.

It has always been emphasized that a sample should be adequate in size and also representative of the population under study. In the present study random sampling (Also stratified random sampling) and purposive sampling techniques was used for collecting data. For this purpose different schools of Block Resource Centre Cholapur were randomly selected.

The present investigation was conducted on a sample of 80 primary and upper primary schools of BRC Cholapur for the study of the effectiveness of training programme organized by BRC Cholapur. The sample size of 90 teachers (30 Shiksha Mitra, 30 BTC and 30 Special BTC Teachers) were selected for the study of their opinion in respect of functioning of BRC Cholapur. BRC Cholapur and all eleven Nayay Panchayat Resource Centres working under BRC Cholapur were selecting for interview & check list as a sample in this study. Details of the sampling procedure are given in the following tables—
### Table: 3.1 (a) Distribution of sample for achievement test:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Pre Test</th>
<th>Post Test</th>
<th>No. of Miss Match Sample</th>
<th>No. of Sample Taken in Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No. of achievement test distributed</td>
<td>122</td>
<td>112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>No. of achievement test returned</td>
<td>116</td>
<td>107</td>
<td>52</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>No. of achievement test not returned.</td>
<td>06</td>
<td>05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table: 3.2 (a) Distribution of sample for quality questionnaire test:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BTC</th>
<th>Sp. BTC</th>
<th>S.M.</th>
<th>Sample size taken under study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No. of quality questionnaire test distributed</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>30 for each group</td>
</tr>
<tr>
<td>2</td>
<td>No. of quality questionnaire test returned.</td>
<td>30</td>
<td>48</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>No. of quality questionnaire test not returned.</td>
<td>30</td>
<td>12</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
Table: 3.3 (a) Selection of sample for interview schedule:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>BRC</th>
<th>NPRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No. of Co-ordinators</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>2. No. of Co-ordinators taken under study.</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>3. No. of co-ordinators left in study.</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table: 3.4 (a) Selection of sample for check-list:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>BRC</th>
<th>NPRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No. of Institutions</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>2. Sample taken under study</td>
<td>1</td>
<td>11</td>
</tr>
</tbody>
</table>

ADMINISTRATION OF TOOLS:

The pre-achievement test administered in three batches (50, 50 and 32 teacher) of teachers who taking in-service training at BRC Cholapur personally. The achievement test (Pre-test) was administered before the training programme conducted by BRC Cholapur. The post achievement test was administered after the training programme imparted by BRC Cholapur. The investigator had to approach the co-coordinator of BRC Cholapur for permission of administration of achievement test.

At the time of the administration of achievement test and quality questionnaire test (Opinionnaire), investigator made rapport from
respondent and assured them that their responses will be kept confidential and it will be used for the purpose of research work only. They were requested to read the instructions carefully and respond accordingly. Each respondent were requested to respond against each and every given item/question.

The quality questionnaire was administered at school level personally. Before the administration of quality questionnaire, the researcher made rapport with principle and teachers of school, to get them confidence about questionnaire as well as solve their quarries.

The investigator met personally to BRC co-ordinator and NPRC Co-ordinators for interview and recorded their responses on the interview schedule.

Checklist was used to check the functioning of Block Resource Centre and Nayay Panchayat Resource Centre by the investigator.

**SCORING :**

**(A) Achievement Test :**

The investigator developed a scoring key for tabulation of data sheet of achievement test. One mark was allotted to each correct answer and zero mark was allotted to every wrong answer. A copy of scoring key is attached in Appendix-I.
(B) Quality Questionnaire Test:

The scoring key was developed by the investigator to score the opinion of teachers on quality questionnaire test. Each positive statement (agree) was allotted one mark and zero mark was given to negative statement (disagree) for each dimension of the quality questionnaire test. The score was collected dimensionwise for different mode of teachers separately. A copy of scoring key is attached in Appendix-II.

(C) Interview Schedule:

All the co-ordinators of the Block Resource Centre (BRC) and Nyaya Panchayat Resource Centres (NPBCs) were interviewed personally as per interview schedule, and data was recorded.

(D) Check-list:

The functioning and working of the BRC and NPRCs were recorded with the help of checklist.

PREPARATION OF DATA SHEET:

With the help of answer key investigator prepared data sheet for achievement test, quality questionnaire test, interview schedule and checklist. All the row data was tabulated on a master sheet, and analysed carefully. A copy of Master Chart of achievement test & quality questionnaire test are given in Appendix - III, IV(a), IV(b) and IV(c).
STATISTICAL TECHNIQUE USED:

In light of the objectives, the data were subjected to statistical analysis to arrive at same generalization. Quantitative analysis of information gathered from test was carried out. The following statistical parameters were applied—

(i) **Mean Value**:

The investigator used mean as a measure of central tendency of the distribution of scores. The following formula were used :-

\[
M = \frac{\Sigma X}{N}
\]

Where, 
- \( M \) = Mean 
- \( \Sigma \) = Sign of Summation  
- \( X \) = Score  
- \( N \) = No. of individual in sample

(ii) **Standard deviation**:

To find out the extent of variability of the distribution standard deviation was calculated by the following formula :

\[
S.D. = \sqrt{\frac{\Sigma X^2}{N} - \left( \frac{\Sigma X}{N} \right)^2}
\]

Where,  
- \( S.D. \) = Standard Deviation  
- \( \Sigma x^2 \) = Sum Total of Scores  
- \( \Sigma x^2 \) = Sum Total of Squares of Score  
- \( N \) = No. of individual in sample.
(iii) **Correlation Co-efficient:**

To find out the relationship between two variables Direct Method of Carl Pearson's Correlation Co-efficient was estimated as per formula which is given below:

\[
r = \frac{N \sum XY - \sum X \cdot \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][\sum XY^2 - (\sum Y)^2]}}
\]

Where 
- \( r \) = Correlation Coefficient 
- \( X \) = Variable 1 
- \( Y \) = Variable 2 
- \( N \) = Number of paired observations 
- \( \sum X \) = Sum of Variable 1 
- \( \sum Y \) = Sum of variable 2 
- \( \sum X^2 \) = Sum of square of variable 1 
- \( \sum Y^2 \) = Sum of Square of variable 2

(iv) **Standard Error of Mean** :

This is calculated or defined as the ratio of the standard deviation to the square root of the number of observation:

\[
SEM = \frac{SD}{\sqrt{N}}
\]

It helps to estimate the error around the mean.
(v) **t-Test (Singal group Method)**:

The researcher compared two means determining the probability that the differences between the means is real rather than chance differences by t-test with the following formula.

\[ t = \frac{M_2 - M_1}{\sigma D} \]

\[ M_1 = \text{Mean of first group} \]
\[ M_2 = \text{Mean of second group} \]

And,

\[ \sigma D = \sqrt{(\sigma M_1)^2 + (\sigma M_2)^2 - 2r \sigma M_1 \sigma M_2} \]

Where,

\[ \sigma M_1 = \text{Standard error of Mean of first group} \]
\[ \sigma M_2 = \text{Standard error of Mean of second group} \]
\[ r = \text{Correlation Coefficient} \]

(vi) **Level of Significance**:

Every statistics was calculated at 0.05 level and 0.01 level. The null hypothesis was rejected when the statistics was significant at 0.05 level and 0.01 level. The statistics was highly significant and a very little risk at type 1 error was there in rejection the null hypothesis.

(vii) **Analysis of Variance (ANOVA)**:

The researcher used the analysis of variance is an effective way to determine whether the means of more than two samples are too different to distribute to sampling error. Following formula has been used-

\[ F = \frac{MS_B}{MS_w} \]

Where,

\[ MS_B = \text{Between groups variance.} \]
\[ MS_w = \text{Within groups variance.} \]
(viii) Difficulty Value (D.V.):

The researcher used the statistics of Difficulty Value to find out the difficulty level of items/questions selected in the achievement test. Formula of D.V. is following:

\[ DV = 100 - \left( \frac{RH + RL}{2N} \right) \times 100 \]

Where,

- \( RH \) = Right answer in higher group
- \( RL \) = Right answer in lower group
- \( N \) = No. of sample

(ix) Discrimination Power (D.P.):

Statistics of Discrimination Power is used to check the discrimination power of each items/questions of achievement test. The following formula has been used:

\[ DP = \frac{RH - RL}{N} \]

Where,

- \( RH \) = Right answer in higher group
- \( RL \) = Right answer in lower group
- \( N \) = No. of sample
(Part-B)

PROCEDURE OF QUESTIONNAIRE CONSTRUCTION

CONSTRUCTION OF ACHIEVEMENT TEST:

Achievement test attempts to measure what an individual has learnt his or her present level of performance. Most test used in school are achievement test. They are particularly helpful in determining individual or group status in academic learning. Achievement test measure the present proficiency, mastery and understanding of general and specific area of knowledge for the most part. They are measures of the effectiveness of instruction and learning. They are of course, enormously important in education and educational research.

Thus, achievement test is constructed here, for the determining the effectiveness of training programme imported at Block Resource Centre with the help of achievement test. It is easy to check the effectiveness of training as a result of change in behaviour or knowledge of teachers who is taking in-service training.

After the study of training content the investigator decided to develop a achievement test. The investigator studied the training content several times. The next step was to frame a number of items from the training content with the help of blue print.
List of items were revised several times according to guidelines of Gupta S.P. (2002). The list of item was given to 3 experts who were related to this field Items were modified reconstructed and rejected under the guidelines and suggestions of experts. After screening, a list of 32 questions was selected. Items were of objective type (having four Alternative) in nature( Appendix - V).

Preliminary Tray out:

The rough draft containing 32 questions was administered to school teachers belonging to block resource centre Cholapur. This was done to see whether the respondents have any difficulty in understanding the language, meaning or the idea contained in the given questions.

The questions were again re-modified, reconstructed and rejected in the light of the difficulties indicated by the teachers. Thus, finally 25 questions were selected in the test( Appendix - VI).

Table : 3.1(b) Showing the result of preliminary try-out for achievement test :

<table>
<thead>
<tr>
<th>Test</th>
<th>Total no. of questions constructed</th>
<th>No. of questions rejected</th>
<th>No. of Questions accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Test</td>
<td>32</td>
<td>07</td>
<td>25</td>
</tr>
</tbody>
</table>

Try-Out:

Fifty six (56) Primary and Upper Primary Schools teacher were selected for the tryout of achievement test. Detail is given below-
Table : 3.2 (b) Detail of teachers participated in try-out for achievement test:

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>School Name</th>
<th>No. of Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Primary School Bahuaanw</td>
<td>02</td>
</tr>
<tr>
<td>2.</td>
<td>Primary School Bela</td>
<td>05</td>
</tr>
<tr>
<td>3.</td>
<td>Primary School Gola</td>
<td>03</td>
</tr>
<tr>
<td>4.</td>
<td>Primary School Gosaipur</td>
<td>02</td>
</tr>
<tr>
<td>5.</td>
<td>Primary School Danganj-II</td>
<td>05</td>
</tr>
<tr>
<td>6.</td>
<td>Primary School Bantari</td>
<td>04</td>
</tr>
<tr>
<td>7.</td>
<td>Primary School Pipari</td>
<td>03</td>
</tr>
<tr>
<td>8.</td>
<td>Primary School Paranapatti</td>
<td>03</td>
</tr>
<tr>
<td>9.</td>
<td>Primary School Cholapur- II</td>
<td>03</td>
</tr>
<tr>
<td>10.</td>
<td>Primary School Sahadih-I</td>
<td>04</td>
</tr>
<tr>
<td>11.</td>
<td>Primary School Laskarpur</td>
<td>04</td>
</tr>
<tr>
<td>12.</td>
<td>Upper primary school Ajagara</td>
<td>02</td>
</tr>
<tr>
<td>13.</td>
<td>Upper primary school Bela</td>
<td>03</td>
</tr>
<tr>
<td>14.</td>
<td>Upper primary school Cholapur</td>
<td>08</td>
</tr>
<tr>
<td>15.</td>
<td>Upper primary school Niyar</td>
<td>05</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>56</td>
</tr>
</tbody>
</table>

For administration of the test, instructions were given to the respondent to expenses their opinion on a achievement test. Time limit was not fixed, but all the respondents were completed the test within 30 minutes. Every correct answer has a one mare mark and every wrong answer have a zero mark. In this way maximum possible score will be 25 and minimum zero.
Item Analysis and Item Selection:

Item analysis was done on the basis of total scores obtained on the scale. The upper 27 percent and lower 27 percent cases were selected for item analysis.

Table: 3.3 (b) Result of Item Analysis of Data for achievement test:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Right Answer in Upper Group</th>
<th>Right Answer in Lower Group</th>
<th>Difficulty Level (D.V)</th>
<th>Discriminative Power (D.P.)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12</td>
<td>6</td>
<td>40%</td>
<td>0.40</td>
<td>S</td>
</tr>
<tr>
<td>2.</td>
<td>15</td>
<td>2</td>
<td>43%</td>
<td>0.87</td>
<td>S</td>
</tr>
<tr>
<td>3.</td>
<td>14</td>
<td>4</td>
<td>40%</td>
<td>0.67</td>
<td>S</td>
</tr>
<tr>
<td>4.</td>
<td>15</td>
<td>2</td>
<td>43%</td>
<td>0.87</td>
<td>S</td>
</tr>
<tr>
<td>5.</td>
<td>13</td>
<td>3</td>
<td>47%</td>
<td>0.67</td>
<td>S</td>
</tr>
<tr>
<td>6.</td>
<td>14</td>
<td>1</td>
<td>50%</td>
<td>0.87</td>
<td>S</td>
</tr>
<tr>
<td>7.</td>
<td>14</td>
<td>6</td>
<td>33%</td>
<td>0.53</td>
<td>S</td>
</tr>
<tr>
<td>8.</td>
<td>14</td>
<td>7</td>
<td>30%</td>
<td>0.47</td>
<td>S</td>
</tr>
<tr>
<td>9.</td>
<td>13</td>
<td>4</td>
<td>43%</td>
<td>0.60</td>
<td>S</td>
</tr>
<tr>
<td>10.</td>
<td>13</td>
<td>0</td>
<td>57%</td>
<td>0.87</td>
<td>S</td>
</tr>
<tr>
<td>11.</td>
<td>05</td>
<td>0</td>
<td>83%</td>
<td>0.33</td>
<td>S</td>
</tr>
<tr>
<td>12.</td>
<td>10</td>
<td>2</td>
<td>60%</td>
<td>0.53</td>
<td>S</td>
</tr>
<tr>
<td>13.</td>
<td>14</td>
<td>6</td>
<td>33%</td>
<td>0.53</td>
<td>S</td>
</tr>
<tr>
<td>14.</td>
<td>12</td>
<td>1</td>
<td>57%</td>
<td>0.73</td>
<td>S</td>
</tr>
<tr>
<td>15.</td>
<td>15</td>
<td>4</td>
<td>37%</td>
<td>0.60</td>
<td>S</td>
</tr>
<tr>
<td>16.</td>
<td>15</td>
<td>2</td>
<td>43%</td>
<td>0.87</td>
<td>S</td>
</tr>
<tr>
<td>17.</td>
<td>09</td>
<td>3</td>
<td>60%</td>
<td>0.40</td>
<td>S</td>
</tr>
<tr>
<td>18.</td>
<td>06</td>
<td>0</td>
<td>80%</td>
<td>0.40</td>
<td>S</td>
</tr>
<tr>
<td>19.</td>
<td>15</td>
<td>1</td>
<td>47%</td>
<td>0.93</td>
<td>S</td>
</tr>
<tr>
<td>20.</td>
<td>15</td>
<td>0</td>
<td>50%</td>
<td>1.00</td>
<td>S</td>
</tr>
<tr>
<td>21.</td>
<td>16</td>
<td>1</td>
<td>77%</td>
<td>0.33</td>
<td>S</td>
</tr>
<tr>
<td>22.</td>
<td>13</td>
<td>8</td>
<td>30%</td>
<td>0.33</td>
<td>S</td>
</tr>
<tr>
<td>23.</td>
<td>14</td>
<td>6</td>
<td>33%</td>
<td>0.53</td>
<td>S</td>
</tr>
<tr>
<td>24.</td>
<td>15</td>
<td>5</td>
<td>33%</td>
<td>0.67</td>
<td>S</td>
</tr>
<tr>
<td>25.</td>
<td>15</td>
<td>4</td>
<td>37%</td>
<td>0.73</td>
<td>S</td>
</tr>
</tbody>
</table>

Sample- S-Selected M-Modifying R-Rejected

Note: Difficulty value of item no. - 7, 8, 13, 15, 22, 23, 24, 25 has lower than 40%, but items were selected on the basis of Discrimination power.
The two essential characteristics of a sound test are its reliability and its validity. Hence the reliability and validity of achievement test was computed.

**Reliability:**

Kerlinger (1973) described a measuring instrument to be reliable if it is relatively free from errors of measurement, i.e. being both accurate and predictable. Reliability refers to the extent to which a measuring device yields consistent results upon testing and re-testing. That is, how dependable is it for predictive purpose. Obviously if a test does not have a high degree of reliability when more than once, it can have but limited value in predicting on individual's future performance or level of development.

Also according to Anastasi (1976), "Reliability refers to the consistency of scores obtained by the same persons when re-examined with the same test on different occasions or with different sets of equivalent items or under other varied examining conditions. In this study the consistency of score obtained by the same by the test and re-test method with same test on different occasion (The gap of 30 days between pre-test and post-test on same group of teachers) could be established.

**Test Re-Test Reliability:**

To check the reliability of test, questionnaire was administered at two times on the same group of teachers of BRC Cholapur. In this way we get two scores of each participant. We calculated the r-ratio (correlation co-efficient) between test and re-test
scores. The calculated ratio is the test-retest reliability of test. It is also known by co-efficient of stability. The estimated reliability is found to be 0.91.

**Table : 3.4(b) Data Analysis of Reliability Score for achievement test:**

<table>
<thead>
<tr>
<th>$X$</th>
<th>$X^2$</th>
<th>$Y$</th>
<th>$Y^2$</th>
<th>$XY$</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>100</td>
<td>11</td>
<td>121</td>
<td>110</td>
</tr>
<tr>
<td>18</td>
<td>324</td>
<td>15</td>
<td>225</td>
<td>270</td>
</tr>
<tr>
<td>7</td>
<td>49</td>
<td>9</td>
<td>81</td>
<td>63</td>
</tr>
<tr>
<td>11</td>
<td>121</td>
<td>10</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>12</td>
<td>144</td>
<td>14</td>
<td>196</td>
<td>168</td>
</tr>
<tr>
<td>12</td>
<td>144</td>
<td>12</td>
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<tr>
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<td>13</td>
<td>169</td>
<td>143</td>
</tr>
<tr>
<td>13</td>
<td>169</td>
<td>12</td>
<td>144</td>
<td>156</td>
</tr>
</tbody>
</table>

$\Sigma X = 179 \quad \Sigma X^2 = 2309 \quad \Sigma Y = 184 \quad \Sigma Y^2 = 2390 \quad \Sigma XY = 2334$

$(\Sigma X)^2 = 32041 \quad (\Sigma Y)^2 = 33856$

$$r = \frac{N \Sigma XY - \Sigma X \cdot \Sigma Y}{\sqrt{[N \Sigma X^2 - (\Sigma X)^2][\Sigma XY^2 - (\Sigma Y)^2]}}$$

(48)
\[ r = \frac{15 \times 2334 - 179 \times 184}{\sqrt{[15 \times 2309 - 32041][15 \times 2390 - 33856]}} \]

\[ r = \frac{35010 - 32936}{\sqrt{[34635 - 32041][35850 - 33856]}} \]

\[ r = \frac{35010 - 32936}{\sqrt{2594 \times 1994}} \]

\[ r = \frac{2074}{\sqrt{5172436}} \]

\[ r = \frac{2074}{2274.30} \]

\[ r = 0.91 \]

Reliability Co-efficient

Table: 3.5 (b) Reliability Co-efficient of Achievement Test:

<table>
<thead>
<tr>
<th>Method</th>
<th>N</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-retest method</td>
<td>15</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Validity:

The validity is concerned with the extent to which an instrument can measure the Characteristics which is designed to measure. The construction and use of a test imply that the instrument has been evaluated against criteria regarded by experts as the best evidence of the traits to be measured by the test. All the questions concerning test those related validity are probably the most important but often difficult to answer. The gathering of reliable evidence bearing on test validity is
often expensive and time consuming. In many instances standard criteria may not be available although the reliability is an essential quality of efficient test, it cannot be substituted for validity. There are number of different statistical procedures available for establishing different validity of the test, however, for the achievement test, the content validity was considered to be most appropriate.

Content Validity:

Content validity of the scale was established by obtaining opinions of experts in the field. The scale with content validity contains items that seem to be related to the variable being measured and the content of the scale seems to be relevant to its stated purpose.

Intrinsic Validity:

Index of reliability is taken as measure of validity also the correlation co-efficient given the relationship between obtained scores and their theoretical counterparts. The intrinsic validity is established in the following manner:

\[
\text{Intrinsic validity} = \sqrt{\text{Reliability}}
\]

\[
= \sqrt{0.91} \\
= 0.95
\]

Table: 3.6 (b) Intrinsic validity of achievement test:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement Test</td>
<td>0.95</td>
</tr>
</tbody>
</table>

(50)
PROCEDURE OF CONSTRUCTION OF QUALITY QUESTIONNAIRE TEST:

To assess the quality and functioning of Block Resource Centre. It was decided to construct an opinion quality questionnaire test. An opinion is often defined as a tendency to react favourably or unfavourably towards a designated stimuli. According to Anne Anastassi, "Opinion is sometimes differentiated from attitude but the proposed distinctions are neither consistent nor logically defensible. More often the two terms are used interchangeably, with regard to assessment methodology however opinion survey traditionally distinguished from attitude scale.

Opinion surveys are characteristically concerned with replies to specific questions, which need not to be related. The answers to such questions are kept separate rather than being combined into a total score. The replies to each question are separately tabulated in the effort to identify sources of satisfaction (agreement) and dissatisfaction (disagreement).

An attitude scale, on the other hand, typically yield a total score indicating the direction and intensity of the individual attitude toward a stimuli.

According to Anastassi, "Opinion polling validation is rarely attempted at all. Data on reliability are also meager especially with reference to opinion survey".

(51)
To measure the opinion regarding the quality of functioning of Block Resource Centre, no suitable tool was found. Hence, it was decided to construct an Opinionnaire quality questionnaire test. With the help of existing literature and functioning of BRC, it was decided to select four dimensions for quality questionnaire test.

The four dimensions are as follows:

1. Quality of training imparted by BRC.
2. Relevance of training imparted by BRC.
3. Quality of extra-curricular activities.
4. Opinion of teachers for improving the functioning of BRC.

The related behaviour of each dimension is given as under-

(1) **Quality of training imparted by BRC:**

This dimension includes the selection of trainers, experience of trainers, availability of training material, followed the training schedule by BRC etc.

(2) **Relevance of training imparted by BRC:**

The second dimension includes the selection process of teachers for training in respect of their interest, eligibility and need of training.
(3) **Quality of extra-curricular activities:**

The third dimension included the opinion on quality questionnaire test relating to the playing kits in schools, participation in various game events, T.L.M. Mela and science Mela etc.

(4) **Opinion of teachers for improving the functioning of BRC:**

It includes statements relating to the selection process of co-ordinators of BRC and NPRCs, Duties and right of co-ordinators, support and supervision in school by co-ordinators.

After defining the four dimensions the next step was to frame a number of items related to each dimensions. A comprehensive list of items under each dimensions were prepared.

List of items was revised several times in the light of guideline of Anne Anastasi (1968). The list of items was given to 5 judges related to this field. Items were modified, reconstructed and rejected according to their suggestions. After the screening a list of total 31 questions for all the four dimensions was prepared and finalized the response for each item was in the form of agree or disagree.

**Each Dimension Consisted following no of Statements:**

(a) Quality of training programme imparted at BRC consisted of 12 statement.

(b) Relevance of training programme imparted by BRC consisting 5 statements.
(c) The quality of extra-curricular activities of BRC like: TLM Mela, Science Mela etc consisting of 6 statements.

(d) Suggestions for the improvement of the functioning of BRCs consisting of 8 statements.

A copy of quality questionnaire test is enclosed in Appendix - VII.

CONSTRUCTION OF INTERVIEW SCHEDULE:

"The interview is in a sense an oral questionnaire. Instead of writing the response, the subject or interviewee gives the needed information orally and face-to-face", James & Khan (2002).

In short the interview is a face-to-face interpersonal role situation in which one person, the interviewer, ask a person being interviewed. There are two broad types of interview: Structured and unstructured or standardized and unstandardized. In the standardized interview, the questions, their sequence, and their wording are fixed. An interviewer may be allowed some liberty in asking questions, but relatively little. Standardized interviews use interview schedules that have been carefully prepared to obtain information pertinent to the research problem.

The interview is perhaps the most suitable method of obtaining information from related peoples to achieve correct data and information. For the above purpose the investigator decided to develop an interview schedule regarding to functioning and problems associated with Block Resource Centre and Nyaya Panchayat Resource Centers.
The schedule consisted 25 questions. Each question consisted three options: Yes, No and Can't say.

A copy of the interview schedule is given in Appendix -VIII.

CONSTRUCTION OF CHECK-LIST:

The check-list is a prepared list of behaviour or items. The presence or absence of the behaviour may be indicated by checking Yes or No. Checklist also can be used to count the number of behaviour occurring in a given time period. Therefore the investigator was decided to prepared a checklist to check the functioning of Block Resource Centre and Nyaya Panchayat Resource Centers.

The Checklist consisting of 12 questions was prepared to check the functioning of BRC and NPRCs (Appendix-IX).